



# Head Lice Management in the School Environment

The war against head lice is a long-standing one. These ectoparasites have infested humankind for over 9,000 years, and despite modern remedies, head lice continue to stay ahead of control efforts. Head lice problems occur year-round. However, it is during the school year that head lice cases seem to be the most common. The reason is that many head louse infestations are discovered by school nurses during classroom head checks. Infested children are usually sent home, and their parents are notified. It is the school nurse's responsibility to manage head lice problems in the school setting (through head checks, child exclusion, etc.), and it is the parents responsibility to control head lice in their own children. Clearly, school nurses and parents are in this battle together. The purpose of this article is to arm school officials and parents with the most current information to help them fight the pediculosis war in the school environment.

## Best Strategy for Controlling Lice

Currently, the best louse control strategy still involves using the pyrethrum or permethrin-based shampoos or creme rinses combined with diligent nit removal (see handout). Shampoos or creme rinses should be applied according to label, and usually this involves a second treatment 7-10 days after the first treatment. Timing is important as it is designed to interrupt the louse's life cycle. In addition, shampoos should be applied to dry hair, as wet lice do not absorb the insecticide as efficiently. If using a creme rinse pediculocide such as NIX®, the child's hair can be washed first with any household shampoo that does not contain creme rinse. Again, the hair should be relatively dry before applying the pediculocide creme rinse. Enough product should be used to thoroughly saturate the hair (but avoid getting it into the child's eyes). Skimping on the pediculocide (such as using one bottle to treat too many heads) will only result in failure.

The next, and most important, step is the "nit-picking." Mechanical removal of the eggs ("nits") is essential to ending the infestation, as pediculocide products do not kill all of the eggs. Nit removal is even more important today as reports of pediculocide failures are becoming common. Nit removal can be accomplished by using nit combs, narrow-toothed flea combs, and even fingernails. Parents should make their child as comfortable as possible as thorough nit picking takes time. Nit picking should be done with adequate lighting. Parents should start looking for nits at the nape of the neck and behind the ears and search in small sections until the entire head has been screened. Shorter hair may be easier to scan for nits than long hair, but shaving a child's head is unnecessary. Parents should repeat the head checks several times during the next week, as it is easy to overlook a few nits.

## Pediculosis Outbreak Prevention at School

*Surveillance:* Head lice surveillance through routine classroom head checks will help to identify individual cases before they spread lice to others. Nurses should begin the head check process by lifting hair (using a new set of wooden sticks or tongue depressors for each child) behind the ears and at the nape of the neck to look for the eggs (nits) or crawling lice. Teachers can help by informing the nurse of any "head scratchers" within their classrooms. Children with evidence of louse infestation (nits and/or crawling lice) can be sent home after notifying the parents. Parents should be provided

with louse control instructions (such as the enclosed handout). Infested children should not be readmitted until proper treatment has been initiated (Communicable Disease Rule 9-6-350). It is a good idea for nurses to ask the parents for a box top from the pediculocide product as proof of treatment. This helps to ensure that appropriate products were used to kill lice. Unfortunately, there have been cases where parents have treated children with inappropriate, and even dangerous, products such as household pesticides, gasoline, etc.

*No-Nit Policies:* Many school districts have “no-nit” policies. No-nit policies are important today in the light of increasing reports of pediculocide treatment failure. However, no-nit policies should be enforced with discretion. Even the most diligent parents will miss a few nits after long bouts of nit-picking. It is not justifiable to exclude a child from school based on the presence of a few “old” nits that are far removed from scalp line. It is important to distinguish between “new nits” and “old nits.” The newly laid eggs/nits are cemented by the female louse to the hair shaft very close to the scalp, and as the hair grows out, so does the nit. Hair grows an average of a quarter inch per week, and viable louse eggs usually hatch within one week. Generally, nits that are greater than a half inch from skin line are usually either dead or already hatched and are likely to be “old”--nonviable--nits. Old nits are not evidence of an active infestation. On the other hand, finding “new nits” close to the scalp, or finding many nits (indicating that the parent did a poor job of nitpicking) may be enough justification to send a child home again. Please Note: head lice do not transmit diseases, and they are NOT considered to be a significant public health problem. The presence of lice alone should not be the reason for a child missing lots of school.

*School Head Lice Prevention:* Head lice are transmitted from person-to-person through close body contact, or through sharing combs, brushes, hats, and other headgear. Lice do not infest classrooms, carpets, and chairs (see discussion under “*Pediculosis is not an environmental problem*”). Person-to-person transmission can be minimized in the school environment by doing the following:

- (1) Space desks and chairs apart so that children are not sitting shoulder-to-shoulder.
- (2) Have children hang coats and hats separately. Do not pile them on top of each other.
- (3) Space children apart when standing or walking in lines.
- (4) During head lice outbreaks, minimize close contact games and sports, such as wrestling.
- (5) During outbreaks, minimize use of shared headgear (such as earphones, helmets, etc.) and clothing (such as hats and costumes in drama classes). Always hand vacuum such headgear between users.
- (6) Provide head louse prevention education to children, such as not sharing combs, brushes, hats, headbands, or clothing.

The recommendations listed above are also applicable outside of the school environment. At home, parents should take steps to keep infested children separate while playing and napping and teach them not to share brushes, combs, hats, etc.

## **Treatment Failures**

Anecdotal reports of treatment failures have become common throughout the country. Many treatment failures can be attributed to using pediculocide products incorrectly, such as not following through with a second treatment at the right time. However, many failures are also being reported by parents who claim that they have used the pediculocide products correctly and can still find lice crawling through their child's hair one or two days later. This may be due to pesticide resistance. Research done at Harvard University has produced evidence that some (but not all) lice have developed resistance to certain pesticides. It is primarily the egg stage that is the most resistant to pesticide. As a result, extra emphasis should be placed on thorough nit removal in addition to the proper use of pediculocides to control louse infestations.

## **Alternative Remedies**

Some parents have resorted to the use of alternative remedies when pesticide-based products have failed. Many "new" remedies are being promoted and old remedies are being revived. Some of the alternative remedies include treating heads with margarine, olive oil, tea-tree oil, mayonnaise, petroleum jelly, and even kerosene and gasoline. Many of these remedies are not proven to be effective, and some may even be dangerous. Most of the new remedies are presumed to work by suffocating lice and eggs, and in order to be effective, they must be left on the head for many hours - usually overnight. Unfortunately, lice, like many insects, can go a very long time (many hours) without a "breath of air," and the eggs will survive even longer. Add to this the problem of washing oily substances out of a child's hair when the treatment is over. Since information is lacking on efficacy and safety, these "off-label" products are generally not endorsed by health officials for head louse control. However, if alternative remedies are used, it is best to choose products that are relatively safe (ex. olive oil). Under no circumstances should parents ever use kerosene or gasoline as a treatment for head lice as children can be severely burned or killed if these chemicals ignite. Bottom line is that there are no shortcuts to successful louse control. The best results will be achieved with proper use of pediculocide products and thorough nit removal.

## **Concerns Over the use of Lindane Products**

Lindane-based pediculocide shampoos are still available for louse control with a doctor's prescription. Lindane products are no-more effective at killing lice than are the over-the-counter pyrethrum/permethrin products. However, lindane is a chlorinated hydrocarbon and is more toxic to mammals (including humans) as it is more readily absorbed into the body. Seizures (and even fatalities) have been reported in persons using lindane-based products repeatedly and improperly.

## **Pediculosis is Not an Environmental Problem**

Head lice do not infest classrooms and homes. They are blood-feeding insects that have become very specialized for surviving on the human head. They do not survive for very long (24-48 hours) when separated from the warm and humid body environment. Lice are so specialized, in fact, that researchers have a difficult time keeping them alive when conducting laboratory studies. As a result of their dependency, 99% of control efforts and time should focus on controlling the infestation on the human body. Spraying classrooms with pesticides is generally a waste of time and money. However, vacuuming carpets and furniture where infested kids spend a lot of time may have some benefit toward picking up any lice and nits that have fallen off the body. Another common misconception is that head lice problems emanate from pets. Human head lice do not infest other animals. Attempts to prevent/control human pediculosis by treating family pets are a waste of effort.

# How To Control Headlice

1. Shampoo the child's hair (and other infested family members) with an appropriate shampoo or cream rinse, which is labeled for controlling lice. Some examples of lice shampoos or rinses include: A – 200 Pyrinate, Kwell, Nix, Rid, and R & C. These and other products are available at your local drug store, or they may be prescribed by a doctor. Be sure to follow the instructions on the label!!! Do not use remedies or products that are not labeled for controlling lice as these may not work, and they may even be harmful.
2. Be sure to shampoo all affected family members at the same time! Any family member with nits (eggs) in the hair or with an itchy scalp should be treated.
3. After shampooing, family members should change into clean clothes. Wash all dirty clothing, linens, and towels in a hot or warm wash cycle. Non-washable items may be dry-cleaned, or they may be vacuumed and sealed in plastic bags for two weeks.
4. Soak combs, brushes, hair picks, etc. in hot (almost boiling) water for at least 15 minutes.
5. Vacuum chairs, couches and other furniture where the children sit, sleep, or play in order to pick-up any loose nits or lice. You do not need to apply household pesticides.
6. Be sure to shampoo everyone once again 7 to 10 days later!!! The timing is very important. In addition, remember to wash dirty clothes, vacuum furniture and treat combs and brushes on the same day.
7. To better your chances for a successful treatment, take the time to remove nits from your child's hair, preferably by using nit combs which are available at local drugstores. Nit removal is important as some of the eggs will survive the shampoo treatments.

## How To Avoid Getting Headlice

1. Do not share hats, combs, brushes, scarves, or coats.
2. Hang your coats separately. Do not hang or pile them on top of each other.
3. Try not to sit and play real close together. Chairs and desks should be spaced apart.

We hope this information is helpful to school officials and parents in their battle against head lice. If you have additional questions, feel free to contact your county health department or the Arizona Department of Health Services, Vector-Borne & Zoonotic Diseases Program at (602) 364-4562.

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